DOCUMENT RESUME

ED 031 767 24 CG 004 362

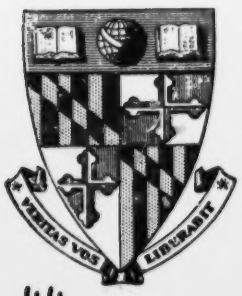
By-Harry, Lindy

Using Simulation Games in the Classroom. Report Number 44.

Johns Hopkins Univ., Baltimore, Md. Center for the Study of Social Organization of Schools.
Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No-BR-6-1610-44
Pub Date Jun 69
Grant-OEG-2-7-061610-0207
Note-15p.
EDRS Price MF-$0.25 HC-$0.85
Descriptors-Educational Equipment, *Educational Games, *Games, *Innovation, Instructional Innovation, Instructional Materials, *Simulation, *Teaching Methods, Teaching Models, Teaching Techniques

The Center for the Study of Social Organizations at Johns Hopkins University has developed suggestions for evaluating, preparing, introducing, playing, discussing, and modifying simulation games for classroom use. The teacher must first evaluate the game materials and the simulation model in the light of the abilities and interests of his students. The key to a successful game experience, for both teacher and student, is adequate preparation. The playing session will run more smoothly if the teacher plays the game with several students in advance. The introduction of the game should be as short as possible, conveying two points: (1) the purpose of the game, and (2) how the game operates. The teacher needs to be flexible and imaginative, answering questions on mechanical problems of the game to insure smooth functioning. The students should discover for themselves the points of strategy. A post-game discussion of: (1) real world events, (2) strategies, and (3) values, is necessary for maximum effectiveness of any simulation game. Simulation games are easily modified to suit the abilities of the players or the objectives of the curriculum. (Author/KJ)

ED031 767



THE JOHNS HOPKINS UNIVERSITY

REPORT No. 44

THE CENTER FOR THE STUDY OF SOCIAL ORGANIZATION OF SCHOOLS

USING SIMULATION GAMES IN THE CLASSROOM

LINDY HARRY

JUNE 1969

CG 004362

BR-6-1610-44
PA-24

OE-BR

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

USING SIMULATION GAMES IN THE CLASSROOM

OEG-2-7-061610-0207

Lindy Harry

June, 1969

Published by the Center for the Study of Social Organization of Schools, supported in part as a research and development center by funds from the United States Office of Education, Department of Health, Education and Welfare. The opinions expressed in this publication do not necessarily reflect the position or policy of the Office of Education, and no official endorsement by the Office of Education should be inferred.

The Johns Hopkins University
Baltimore, Maryland

A variety of articles in several sources have discussed the issues raised by the use of simulation techniques in the classroom.[1] The purpose of this article, however, is not to argue with the skeptics or make new converts. Instead, it is intended to be a practical guide to teachers who want to "try out" gaming in their classrooms The suggestions presented herein for evaluating, preparing, introducing, playing, discussing, and modifying simulation games are based upon practical experience and implications drawn from various research studies. The explanations and examples are based upon several games designed by members of the Simulation Games Program at the Center for the Study of Social Organization of Schools, Johns Hopkins University, but the suggestions are applicable to other simulation games as well. (Descriptions of all simulation games mentioned in this paper appear in the appendix.)

Evaluating Model and Materials

Before deciding to use a particular simulation game, the teacher must evaluate the game materials and the simulation model in the light of the abilities and interests of his students. Although articles and advertisements may be helpful in making these decisions, it is probably best to become familiar with the objectives of the game by studying the equipment and reading the instructor's manual.

Game models vary in complexity; some have complicated rules, scoring tables, and several forms or score sheets, while others have simple rules and little printed matter. Thus, the model of the game should not be so complex that it will only frustrate the players, but it should be difficult

enough to challenge their skills in strategy design and problem solving. It is often possible, however, to simplify a complex game by eliminating some aspects of the model so that it can be played by younger students.[2] Conversely, students can modify a simple game by adding features of the real world not already simulated or applying the model to another process of the real world.

Some simulation games require a degree of arithmetic skill for scorekeeping purposes. A particularly bright student could take the role of scorekeeper in this case. Every student, however, should be capable of performing the arithmetic tasks necessary for planning strategy or making decisions.

Students should also be able to read the instructions and refer to the rules unless provisions are made to teach them the rules in some other way. Some games, such as Dangerous Parallel, are being sold with sound filmstrips which give a general overview and a brief explanation of the rules of the game. Other games, like the Life-Career game, have special abbreviated rule books for players with low reading ability. The teacher can then introduce rules orally as situations arise. Although some games, such as Inter-nation Simulation and Simsoc, require several rooms or expensive equipment, most can be played in a regular classroom. Special arrangements may be necessary for large classes or unusual classroom situations.

The objectives of the simulation game should be scrutinized for validity and relevance to the course content. Most teacher's manuals contain an explanation of the game model and a statement of principal objectives. After

reading the rules and playing the game, teachers may discover other educational values of the game experience. They may also conclude that the stated objectives are overdrawn by the game designer or that important concepts are oversimplified or neglected. The task of simulating a complex social process necessarily implies some simplification and abstraction. The teacher can usually correct any misconceptions in the class discussion and emphasize other concepts in supplementary activities. Before deciding to use a particular game, the teacher then must make important decisions about its worth and suitability in relation to his course objectives and the abilities of his students.

Preparing for Play

The key to a successful game experience, from both teacher and student viewpoints, is adequate preparation. The first step, learning the game and evaluating the model and materials, has already been discussed. The playing session will run more smoothly if the teacher plays the game with several students in advance. These students can then be given the job of introducing the game and explaining the rules to classmates. They can also play several rounds of a model game while the teacher introduces the game and explains the rules. These students might also be assigned to major roles in the game (i.e., lending agents in Consumer or chairmen in Democracy) or scattered among the teams so that they can help the slower students. Any of these procedures will decrease confusion and free the teacher from questions.

It is often possible to prepare materials in advance to save time during the play of the game. The teacher should check the materials to be sure that there are sufficient forms (record sheets, score sheets). To speed up distribution, the teacher may want to put all the materials for each team together. For example, a copy of the rules, a record sheet, hour chips, and packets of money for a team can be distributed in one folder.

If the game requires resource materials, these should be placed in the classroom or special arrangements made with the librarian. In one modification of the Life-Career game, for example, local job opportunities and college entrance requirements are substituted for those given in the game. In this case, want-ads, college handbooks, and university catalogs should be available in the classroom. Since one suggested value of simulation games is their ability to motivate students to learn more about the subject being simulated, it might be worthwhile to collect a selection of related readings for the classroom or in the library. Most teacher's manuals contain a list of suggestions, for both teacher and student, including government publications, magazine articles, textbooks, novels, and non-fiction books.

If the game is played in teams the teacher can organize these the day before playing. The teacher's manual usually suggests an optimum number of players. In his research on the differing effects of the Disaster game among various groups, Michael Inbar of Johns Hopkins concluded that the size of the playing group was the major explanatory variable. In over-

crowded groups, players learn the rules less efficiently. Also, since the players interact less, participate less actively, and make fewer moves, the total impact of the game is decreased and interest level is lower.[3] The dividing line varies from game to game, but the implications are obvious. The teacher should follow the designer's suggestions carefully for the optimum number of players per game. With many games, it will be necessary to divide the class into several groups, each playing separately and using a set of game materials. (For this reason, it is essential to train students to play the important roles prior to playing the game in class, leaving the teacher free to answer questions and counsel all the groups.)

Research in the field of business management gaming also contains implications for organization of teams. According to James L. McKenney and William R. Dill,[4] putting groups together because the players have worked together before or because they are homogeneous in ability does not enhance the opportunities for learning. For maximum student satisfaction and performance competing teams should not reflect obvious differences in potential. Thus, McKenney and Dill suggest that each team should have several players with above average ability or leadership potential. Also, research by Clarice S. Stoll has shown that students generally perform better when they choose their own roles and their own teammates.[5] For slower students or ones who are easily discouraged, playing a single role as a pair will decrease their frustration at setbacks and allow them the security of a teammate when making decisions. This device accomodates more players in a single game and is thus useful with larger classes.

Introducing the Simulation Game

Simulation games may be used in a variety of ways to enhance a unit of study. They may be used at the beginning of a unit, introducing the student to major concepts or problems. They may serve as a concluding activity, summarizing and tying together the important concepts. The introduction, of course, will depend partly upon the use of the game within the unit. In any case, the introduction should be as short as possible. In general, the introduction should communicate two points. First, the students should understand the purpose of the particular game. If they have never played a simulation game before, the introduction might include a brief definition of the term and a comparison of simulation games with other familiar games. Further, the introduction should provide an overview of the content and value of the particular game. Second, the introduction should convey in a clear, concise fashion how the game operates.[6] It is helpful to distribute the game materials as they are explained. Transparencies of record or score sheets can simplify instructions. Care should be taken not to "over-explain" the game. A forty-minute lecture on rules can dampen anyone's enthusiasm to play even the most interesting game. Some rules can be introduced as they occur in the game.

Although the effect of the group assignment is the major determinant of the impact of the session upon the players, Inbar emphasizes that the players' predispositions to the simulation game remain important. The pre-game attitude of the players toward the simulation experience explains much of the

variance in the amount of enjoyment and the degree of learning among players of the Disaster game. Thus, a willingness to take part in a simulation because of aroused interest in the subject-matter is the best guarantee of positive reaction to a game.[7] Careful handling of the players by the teacher before the session begins may induce important predispositions. The teacher should therefore display an enthusiastic and assured attitude. The manufacturers of Dangerous Parallel by the Foreign Policy Association were the first to act upon this research implication by providing a sound filmstrip with the game materials which introduces the game dramatically and explains the rules clearly. The teacher can lend similar excitement to his presentation with a related film or pictures.

Playing the Game

During the actual play of the game, the teacher should attempt to insure the smooth functioning of the simulation. Advance preparation can eliminate much of the initial confusion, but difficulties and questions will inevitably arise. Mechanical problems and confusion tend to interfere with student involvement and decrease the effectiveness of simulation games as learning devices. For this reason, the teacher, however well-prepared, must also be flexible and imaginative. If materials get misplaced, improvise a substitute! If a rule is forgotten or (as sometimes happens) not covered in the teacher's manual, make one up! The teacher should be careful to answer only questions about the rules of the game; students should discover for themselves the points of strategy.

In his research with the Consumer game, Gerald Zaltman has shown that the extent of game participation affects the degree of learning. The more frequently a player borrows money in the Consumer game, the more likely he will know the correct answers to post-game questions about differential interest rates.[8] The teacher should encourage the active participation of all players by questioning the players about their decisions and discussing their strategies. In effect, simulation games are a social studies analogue for the physical science laboratory, providing opportunities for experimentation with various social theories.[9] For this reason, the teacher should display a neutral attitude toward all game strategies.

A master scoreboard showing the scores of each team is another method of maximizing the benefits of a gaming experience. The scoreboard can be chalked on the blackboard or written on a reusable transparency. It allows students to see patterns evolving and to compare strategies. It can also serve as a catalyst for informal or class discussion.[10]

Research also suggests that students learn more if play is stopped after several rounds for a class discussion.[11] It is usually true that any simulation game should be played at least two times, to allow players to try out alternate strategies and to reinforce the concepts learned during the first play or in the class discussion.

Discussing the Game Experience

A post-game discussion is necessary for maximum effectiveness of any simulation game. Clark Abt, a games designer himself, has noted that the reality of simulation games raises the possibility of students "learning

spurious analogies and over-rating the predictability of events."[12] For this reason, post-game discussions provide an important opportunity for students to compare the real world events with the simulation events. The discussion also reinforces the concepts learned in the game. The students begin to see the general principles underlying the game. The discussion helps players to verbalize their newly acquired skills. Game designers realize that not all students fully grasp the strategy and model of a simulation game during the first play. The discussion, however, helps unsuccessful players learn about the strategy of successful players.

During the discussion, then, it is useful to identify the winning teams or individuals and have these students reveal their strategies. At this time, the teacher may also want to discuss the scoring system, comparing it with the reward system in the real world. A second series of discussion questions should focus on the reality of the game model. What elements of the process or institution are missing? What rules could be changed? Could the winning strategy be applied to real life? Third, the teacher should try to discuss the various implications of the game model, the strategies that evolved, and the real-world problems.

Although there is no systematic research evidence on the subject, an important question about simulation games is whether behaviors learned during a game are generalized to the real-life situation simulated in the game.[13] For example, will the player who learned planning in order to succeed in Life-Career make his own occupational choice with more insight?

One way to increase the carry-over effect of a simulation game is to tie the post-game discussion questions with actual case studies. One level of the Democracy game concerns the dilemma confronting a representative whose own convictions differ from the views of his constituents. In discussing this problem, the students could be given information about a particular senator who voted against the expressed feelings of his constituents in order to satisfy his conscience.

The post-game discussion also presents a rare opportunity to examine issues concerning values or social problems without the usual difficulties. Usually, a discussion of personal values or controversial issues forces the student to refer to personal situations which may be embarrassing. Often the students lack the experience to discuss the topic meaningfully and the class can easily degenerate into a "free-for-all" exchange of personal prejudices. But the social studies classroom should be the place where the practice of rational thinking about controversial topics should occur. Simulation games, by providing comparable experience for all students, help the teacher in discussions of values. In the Life-Career game, for example, the question arises whether Mike, a below average student from a needy family, should work full-time, continue in high school, or shift to vocational training. Rewards for education are built into the game, as they are in real life. The game, however, is not meant to teach that education is necessary for success, but that it usually is so in the United States. The obvious value-related issue is what constitutes the good life.[14]

A variety of activities should follow the play and discussion of a simulation game. Abt has noted that the very attractiveness of games to students could be dangerous if other activities become boring or the technique of simulation is over-used. Simulation games should be recognized as only an enhancing complement of conventional study methods.[15] Cleo Cherryholmes suggests that one type of follow-up activity could allow students to validate the theory embedded in a simulation by a variety of comparisons with the real-life referrent system.[16] After playing Democracy, students could poll their parents to determine their reasons for voting for and against an incumbent, possibly consult statistical information from a recent election, or even read case studies.

Modifying Simulation Games

Simulation games are easily modified to suit the abilities of the players or the objectives of the curriculum. Certain changes for low-ability level students have already been noted. It is also possible to vary a game so that the content is better suited to the course objectives. In the Democracy game, urban or state-wide issues can be substituted for the national issues given in the game. The teacher can build into the basic game additional learning experiences. In the Life-Career game, for example, a guidance counselor or student could simulate job or school interviews at the scoretable.

Since social simulation games are, in essence, miniature social systems, they can become the basis of experiments. After playing and discussing a certain game, the students might suggest a rule change and hypothesize its effect upon the results of the game.

Similarly, several researchers have suggested that the major benefit of participating in simulation games may come from constructing the model.[16] Thus, the teacher may want to give his students opportunities to design their own simulation games. The students could begin by designing games using existing models. In the Project Social Studies at Northwestern University, students are presented with a completed simulation of the present United States Congress at the beginning of a course in U.S. History. Later, they are given historical materials describing Congress at the turn of the century and asked to redesign the model. Besides the valuable experience of designing a model from a set of information, the students, by dealing theoretically with the same structure across time, may become sensitized to change.[18]

Although the educational benefits seem to be substantial, there are several problems connected with student design of simulation games. Constructing a good simulation is not an easy task. The teacher must develop a technique for the students to follow.[19] The subject-matter must also be arranged to present the basic facts and features of the social process to be simulated. The students must spend a considerable amount of time in researching, designing, operating, and revising the model.[20]

Conclusion

These suggestions are designed to encourage teachers to use simulation games successfully in their classrooms. Although much more research is needed on the values of games, the studies cited in this paper should provide some clues for the most effective use of games.

APPENDIX

Descriptions of Simulation Games Developed at the Johns Hopkins University *

CONSUMER

A model of the consumer buying process involving players in the problems and economics of installment buying; consumers compete to maximize their utility points for specific purchases while minimizing their credit charges; the three different credit agents also compete to make the most satisfactory lending transactions. (c) Gerald Zaltman, 1966.

DEMOCRACY (LEGISLATURE)

A composite of eight different games which simulate the legislative process; in the basic version players act as representatives, giving speeches and bargaining with other players. The object is to pass those issues which are most important to their constituents and thereby get re-elected. (c) James S. Coleman, 1966.

DISASTER

A simulation of a community hit by a localized natural disaster; each player tries to dispel his personal anxiety for family members who may be within the stricken area, while at the same time tries to operate his community post which is vital to the community's well-functioning and eventual overcoming of the disaster. (c) Michael Inbar, 1965.

LIFE CAREER

A simulation of certain features of the "labor market," the "education market," and the "marriage market," as they now operate in the U.S. and as projections indicate they will operate in the future; the players work with a profile of a fictitious person, alloting his time and activities among school, studying, a job, family responsibilities and leisure time. (c) Sarane S. Boocock, 1966.

* Other games not mentioned in the text include Economic System, Ghetto, Parent-Child, and Trade and Develope

FOOTNOTES

[1]See as examples Sarane Boocock and E.O. Schild (eds.) Simulation Games in Learning, Sage Publication Co., Beverly Hills, 1968; James S. Coleman, "Academic Games and Learning", paper read at Invitational Conference on Testing Problems, Educational Testing Service, Princeton, New Jersey, 1967; Howard Kardatzke, "Simulation Games in the Social Studies: The Reality Issue", Social Education 33, February, 1969.

[2]The Life-Career game for example, was modified for use by sixth graders in San Diego, California. See R. Garry Shirts, Career Simulation for Sixth Grade Pupils, report of Department of Education, San Diego County.

[3]Inbar, Michael, "Individual and Group Effects on Enjoyment and Learning in a Game Simulating a Community Disaster", in Sarane S. Boocock and E.O. Schild (eds.), Simulation Games in Learning, Sage Publications, Beverly Hills, California, 1968. p. 183.

[4]McKenney, James L. and Dill, William R., "The Effects of Team Assignment and Faculty Boards on Student Attitudes and Learning", in Boocock and Schild, op cit., p. 230

[5]Stoll, Clarice S., "Player Characteristics and Strategy in a Parent-Child Simulation Game". Report No. 23 of the Center for the Study of Social Organization of Schools, The Johns Hopkins University, Baltimore, Maryland, July, 1968.

[6]Boocock, Sarane S., "Instructor's Manual", Life-Career game, Baltimore Maryland, Academic Games Associates, 1968, p. 11.

[7]Inbar, Michael, in Boocock and Schild, op. cit., p. 182.

[8]Zaltman, Gerald, "Degree of Participation and Learning in a Consumer Economics Game", in Boocock and Schild, op. cit., p. 211.

[9]Coleman, James S., "Games as Vehicles for Social Theory", American Behavioral Scientist, (July-August, 1969, Forthcoming).

[10]Boocock, Sarane S., op. cit., p. 8-9.

[11]Personal communication with Gerald Fletcher, Harvard University.

[12]Abt, Clark C., "Games for Learning", in Boocock and Schild, op. cit., p.77.

[13]Schild, E.O., "The Shaping of Strategies," in Boocock and Schild, op. cit., pp. 151-2.

[14] Stoll, Clarice S., and Boocock, Sarane S., "Simulation Games for Social Studies", Audiovisual Instruction, 13 (October, 1968) pp. 841-42.

[15] Abt, Clark C., in Boocock and Schild, op. cit., pp. 83-84.

[16] Cherryholmes, Cleo H., "Some current Research on Effectiveness of Educational Simulations: Implications for Alternative Strategies", American Behavioral Scientist, 10 (October, 1966), p.7.

[17] Shubik, Martin (ed.) Game Theory and Related Approaches to Social Behavior. New York, John Wiley and Sons, 1964, p. 273.

[18] Cherryholmes, Cleo, op. cit., p. 7.

[19] For information on the technique of designing simulation games, see James S. Coleman, "Social Processes and Social Simulation Games" in Boocock and Schild, op. cit; Clark C. Abt in Boocock and Schild, op. cit., pp. 65-84; Samuel A. Livingston, "How to design a Simulation Game", Baltimore, Maryland: The Johns Hopkins University, 1967 (Dittoed); Clarice S. Stoll and Michael Inbar (eds.) Social Science Simulations, New York; The Free Press (Forthcoming).

[20] Cherryholmes, op. cit., p.7.